IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	**10/649,636**	Confirmation No. 5550
Applicant	:	FUKUDA, S. et al.	
Filed	:	August 28, 2003	
Title	:	STORAGE MANAGEMENT SYSTEM	
TC/AU	:	2171	
Examiner	:	TBD	
Docket No.	:	520.43064X00	
Customer No.:		24956	

PETITION TO MAKE SPECIAL
(ACCELERATED EXAMINATION UNDER MPEP § 708.02(VIII))

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Applicants petition the Commissioner to make the above-identified application special in accordance with 37 CFR §1.102(d). In support of this Petition, pursuant to MPEP § 708.02(VIII), Applicants state the following.

(A) REQUIRED FEE

This Petition is accompanied by the fee set forth in 37 CFR § 1.117(h). Payment of the fee has been made in the manner set forth below in Section (G).

(B) ALL CLAIMS ARE DIRECTED TO A SINGLE INVENTION

Following the Preliminary Amendment filed on the same date as this paper, claims 1-20 remain pending in the application. All the pending claims of the application are directed to a single invention. If the Office determines that all claims in the application are not directed to a single invention, Applicant will make election without traverse as a prerequisite to the grant of special status in conformity with established telephone restriction practice.

As set forth in independent claims 1, 4, 9, 11 and 19, the invention is generally directed to a storage management system and method for allocating volumes in a storage system. Under claim 1, the invention is a volume allocating method in a storage management system for managing operation of a storage device connected via a network by use of a storage management server, the volume allocating method comprising: receiving, via the network, a condition for allocating a volume designated by a client; obtaining information on operation history of the volume from a memory device for storing, as history, information including a performance value of a disk group obtained upon actually operating the storage device; obtaining information on specification values including the performance value of the storage device; assuring a performance margin and determining a candidate of an allocable volume in accordance with the received condition for allocating the volume based on the information on the operation history of the volume and the information on the storage device; transmitting information on the volume of the allocated candidate to the client; receiving information on volume allocation selected and transmitted from the

information on the volume of the allocated candidate in the client; and allocating the volume to the storage device in accordance with the information on the volume allocation.

Additionally, under independent claim 4, the invention is a storage management server for managing the operation of a storage device connected via a network, the storage management server comprising: a database for operation history which stores, as history, information including a performance value of a disk group obtained upon operating the storage device; a database for a volume performance value which stores information on specification values including performance, reliability, and a capacity of the storage device obtained from the storage device; a policy database which stores information on policies including the performance corresponding to a plurality of set policies; first processing means which calculate a forecasted performance value from the information on the performance value of the disk group stored in the database for operation history; second processing means which obtain a performance margin, based on a theoretical performance value of the volume and the forecasted performance value obtained by the first processing means; and volume determination processing means which determines an allocation candidate for allocating the volume in accordance with a calculation result of the second processing means.

Furthermore, under independent claim 9, the invention is a program for selecting and generating a volume candidate functioning on a storage management server, the storage management server comprising a database on operation history

for storing, as history, information including a performance value of a disk group obtained by operating a storage device connected via a network, a database for a volume performance value for storing information on specification values including performance, reliability, and a capacity of the storage device, obtained from the storage device, and a policy database for storing information on a policy including the performance corresponding to a plurality of set policies, the program for generating the volume candidate comprising: a first processing step of calculating a forecasted performance value from the information on the performance value of the disk group stored in the database on the operation history; a second processing step of obtaining a performance margin based on a theoretical performance value of the volume and the forecasted performance value obtained in the first processing step; a volume determination processing step of determining a candidate for allocating the volume in accordance with a calculation result of the second processing step; and a step of generating information for displaying a volume candidate from information based on the volume determination processing step, so as to display the volume candidate on a client connected to the storage management server.

In addition, under independent claim 11, the invention is a storage management server for managing operation of a storage device connected via a network, comprising: a database for operation history which stores, as history, information including a performance value of a disk group obtained upon operating the storage device; a database for a volume performance value which stores information on specification values including a performance on the storage device;

processing means which calculate a forecasted performance value from the information on the performance value of the disk group stored in the database for operation history and which obtains a performance margin per unit time based on the obtained forecasted performance value and a theoretical performance value stored in the database for a volume performance value; volume determination processing means which determine a candidate for allocating a volume in accordance with a calculation result of the processing means; and means for transmitting, to a client connected to the storage management server, information indicating a volume candidate determined by the volume determination processing means.

Finally, under independent claim 19, the invention is a volume allocating method in a storage management system, comprising: receiving a condition on requested performance per operating time zone of a volume designated by a client; referring to history information obtained from a result of actually operating disk groups; calculating a performance margin of the disk group upon allocating the volumes of the disk groups based on the history information, obtaining a volume candidate as an allocation target from the disk groups in accordance with a calculation result and presenting the volume candidate to the client; and receiving and storing one volume candidate selected by the client.

(C) PRE-EXAMINATION SEARCH

A pre-examination search has been conducted, directed to the invention as claimed. The pre-examination search was conducted in the following US Manual of Classification areas:

Class	Subclass
707	2, 100, 200, 205
709	223, 226
711	111-112, 114

Furthermore, a keyword search was conducted on the USPTO's EAST database, including the US patent database, the published US patent applications database, and the European and Japanese patent abstract databases. In addition, a search for non-patent literature was conducted on the ACM (Association for Computing Machinery) online databases.

(D) REFERENCES DEEMED MOST-CLOSELY RELATED TO THE SUBJECT MATTER ENCOMPASSED BY THE CLAIMS

Based upon a review of the documents located by the search and the documents already of record in the application, the references deemed to be most-closely related to the subject matter encompassed by the claims are listed below. These documents were made of record in the present application by the Information Disclosure Statements filed July 1, 2005, and November 8, 2004.

Document No.	Inventor
US 6754679	Oheda
US 20020183972	Enck et al.
US 20030093439	Mogi et al.
US 20030115324	Blumenau et al.
US 20040122799	Goyal et al.

Document No.	Inventor
US 20040221049	Blumenau et al.
US 20030074528	Soejima et al.
JP 2001-184175	Otake
JP 10-320126	Kaneko et al.

Because all of the above-listed references are already of record in the present application, in accordance with MPEP § 708.02(VIII)(D), additional copies of these documents have not been submitted with this Petition. The remaining documents of record in the application are NOT deemed to be among those references most-closely related, and, accordingly, no discussion of the remaining documents is required for this Petition.

(E) DETAILED DISCUSSION OF THE REFERENCES

Following a brief discussion of the invention, the references deemed most-closely related are discussed below in Section (E)2, pointing out, with the particularity required by 37 CFR 1.111 (b) and (c), how the claimed subject matter is patentable over the teachings of these documents.

1. Discussion of the Invention

Under the present invention a volume is allocated in accordance with a determination based upon a forecasted performance value and a stored operation history, and based upon a performance requested by a client. A volume candidate is obtained and presented to the client. It is submitted that the cited references,

whether taken individually, or in combination, fail to teach or suggest the invention as claimed in independent claims 1, 4, 9, 11 and 19.

As set forth in claim 1, a first feature of the invention includes obtaining information on operation history of a volume and information on specification values including the performance value of the storage device, and assuring a performance margin and determining a candidate of an allocable volume in accordance with a received condition for allocating the volume based on the information on the operation history of the volume and the information on the storage device.

In addition, as set forth in claims 4, 9 and 11, a second feature of the invention includes calculating a forecasted performance value from information on a performance value of a disk group stored in a database for operation history, obtaining a performance margin based on a theoretical performance value and the forecasted performance value, and determining a candidate for allocating a volume in accordance with a calculation result.

Further, as set forth in claim 19, a third feature of the invention includes referring to history information obtained from a result of actually operating disk groups, calculating a performance margin of the disk group based on the history information, and obtaining a volume candidate in accordance with a calculation result.

As will be discussed in more detail below, the prior art does not teach or suggest the above-described features.

2. Discussion of the References Deemed to be Most-Closely Related

The patent to Oheda, US 6754679, discloses history data relating to past database updates over time stored to magnetic disk devices. The history data extracted from enterprise systems is accumulated in a data warehouse database. A performance manager 285 allows a user defining a requested time for replication operations (steps 703-706). Intermediate volumes are allocated by a configuration manager 286. A volume allocating module 201 measures data transfer speeds when volumes are in operation. The measured results are compared to performance data for the volume to determine if the volume is acting as a performance bottleneck. The number of volumes allocated as intermediate volumes can be increased if the transfer bandwidth of the intermediate volumes is acting as the bottleneck. (See, e.g., Abstract; column 2, lines 36-50; column 3, lines 1-9; column 4, lines 15-25; column 7, lines 59-67; column 8, lines 49-58; column 9, lines 26-65; and Figures 1-2, 4-6.) Thus, while Oheda allows resources of the disk storage system to be managed in a way that meets the requested specifications of a user, Oheda does not disclose obtaining, calculating or assuring a performance margin, or allocating a volume based on operation history, device information, and a received condition. More particularly, Oheda does not teach obtaining information on operation history of a volume and information on specification values including the performance value of a storage device, and assuring a performance margin and determining a candidate of an allocable volume in accordance with a received condition for allocating the volume based on the information on the operation history of the volume and the

information on the storage device, as set forth in claim 1. Similarly, Oheda does not teach calculating a forecasted performance value from information on a performance value of a disk group stored in a database for the operation history, obtaining a performance margin based on a theoretical performance value of the volume and the forecasted performance value, and determining a candidate for allocating the volume in accordance with a calculation result, as recited in claims 4, 9 and 11. Additionally, Oheda does not teach referring to history information obtained from a result of actually operating disk groups, calculating a performance margin of a disk group based on the history information, and obtaining a volume candidate in accordance with a calculation result, as set forth in claim 19.

The published patent application to Enck et al., US 20020183972, discloses a measurement engine 310 that obtains information from data providers 330 and provides the information as performance policies 320 to consumers. A collector 430 is instantiated to populate a collection (e.g., a history of metrics) with data. A measurement agent contains logic storing data in at least one persistent storage element 420 and/or in a transient storage element. The measurement data and collection data are dynamically adjusted based on the performance policy (step 110) and system health. The performance policy can be directed to specific system conditions (e.g., a CPU bottleneck, a memory bottle neck, or a disk bottleneck). Collected data at fixed intervals is developed into historical data. The performance (e.g., CPU bottleneck) policies collect the historical data. The performance policies

then analyze the historical data to determine if a message should be sent to a system operator. (See, e.g., Abstract; paragraphs 21-23, 39, 46-47 and 121; and Figures 3-4). However, unlike the present invention, Enck et al. do not disclose a obtaining, calculating, or assuring a performance margin, or allocating volumes based on history information. More particularly, Enck et al. do not teach obtaining information on operation history of a volume and information on specification values including the performance value of a storage device, and assuring a performance margin and determining a candidate of an allocable volume in accordance with a received condition for allocating the volume based on the information on the operation history of the volume and the information on the storage device, as set forth in claim 1. Similarly, Enck et al. do not teach calculating a forecasted performance value from information on a performance value of a disk group stored in a database for the operation history, obtaining a performance margin based on a theoretical performance value of the volume and the forecasted performance value, and determining a candidate for allocating the volume in accordance with a calculation result, as recited in claims 4, 9 and 11. Additionally, Enck et al. do not teach referring to history information obtained from a result of actually operating disk groups, calculating a performance margin of a disk group based on the history information, and obtaining a volume candidate in accordance with a calculation result, as set forth in claim 19.

The published patent application to Mogi et al., US 20030093439, discloses a computer system that can realize data storage position relocation for the purpose of obtaining good access performance characteristics of the storage devices. Information 138 on execution history 122 of a volume may be obtained from a memory 88 in each of the DB hosts. The execution history information 138 is stored on a data position management server 82. A plurality of different types of data allocation analysis/data relocation plan preparing operations can be executed and processed. A program collects information necessary for the data relocating operation, and stores the collected information as storage device operation information 132, and execution history information 138 (steps 2000-2004). The program presents the data relocation plan to an administrator. The administrator judges to continue the data relocation operation or not. (See, e.g., Abstract; paragraphs 4, 7-10, 18-19, 39, 44, 45, 52-56, 62-63, 65-70, 74, 75-80, 85, 91, 98, 106-107, 110-112, 131 and 134; and Figures 1-5 and 18-19). However, unlike the present invention, Mogi et al. do not disclose obtaining, calculating, or assuring a performance margin, or and determining a candidate of an allocable volume based on operation history. More particularly, Mogi et al. do not teach obtaining information on operation history of a volume and information on specification values including the performance value of a storage device, and assuring a performance margin and determining a candidate of an allocable volume in accordance with a received condition for allocating the volume based on the information on the operation history of the volume and the information on the storage device, as set forth in claim 1.

Similarly, Mogi et al. do not teach calculating a forecasted performance value from information on a performance value of a disk group stored in a database for the operation history, obtaining a performance margin based on a theoretical performance value of the volume and the forecasted performance value, and determining a candidate for allocating the volume in accordance with a calculation result, as recited in claims 4, 9 and 11. Additionally, Mogi et al. do not teach referring to history information obtained from a result of actually operating disk groups, calculating a performance margin of a disk group based on the history information, and obtaining a volume candidate in accordance with a calculation result, as set forth in claim 19.

The published patent application to Blumenau et al., US 20030115324, discloses receiving requests at the storage devices via network 21 from a host processor 12. A configuration database 32 stores information regarding which ones of the host bus adapters (HBAs) have access to which ones of the volumes. The configuration database 32 has a history table 69. The history table is apportioned into one block for each of the ports of the storage area. The configuration database 32 includes a volume allocation portion 72 provided for allocating logical volumes of data at the storage system 20 to different HBAs. A history table 69 lists those hosts that have queried a port as they entered the network. This identification information may be used when the host logs into the storage system to match an identifier of the host with configuration data for the host. (See, e.g., Abstract; paragraphs 27-28, 30

and 41-43; and Figures 3 and 6). However, unlike the present invention, Blumenau et al. do not disclose a step of obtaining, calculating or assuring a performance margin, or allocating a volume based on operation history of a volume. More particularly, Blumenau et al. do not teach obtaining information on operation history of a volume and information on specification values including the performance value of a storage device, and assuring a performance margin and determining a candidate of an allocable volume in accordance with a received condition for allocating the volume based on the information on the operation history of the volume and the information on the storage device, as set forth in claim 1. Similarly, Blumenau et al. do not teach calculating a forecasted performance value from information on a performance value of a disk group stored in a database for the operation history, obtaining a performance margin based on a theoretical performance value of the volume and the forecasted performance value, and determining a candidate for allocating the volume in accordance with a calculation result, as recited in claims 4, 9 and 11. Additionally, Blumenau et al. do not teach referring to history information obtained from a result of actually operating disk groups, calculating a performance margin of a disk group based on the history information, and obtaining a volume candidate in accordance with a calculation result, as set forth in claim 19.

The published patent application to Goyal et al., US 20040122799, discloses a policy managed system policy managed system 300 that includes a

database/tablespace analysis processor 430 for analyzing the performance needs of the database. The policy managed system 300 includes a storage reallocation processor 415 that continually monitors whether the needs of the different databases and tablespaces are being met, and whether the usage of the different storage units 310 is balanced. The storage reallocation processor 415 through information provided by monitors 305 can determine if a specific storage unit is processing a substantially larger percentage of input/output requests when compared to the average number of input/output requests processed by the remaining storage units within a specified grouping. Similarly, the storage reallocation processor 415 maintain statistics on the percentage of the space available within each of the storage units. A rules processor 405 may give certain storage units and databases a priority over other storage units in databases. In response to such rules, the storage reallocation processor 415 reallocates portions of tablespaces and databases to different storage units in order to comply with the various rules. In addition, the tablespace creation/maintenance processor 425 monitors all tablespaces and databases and reallocate portions of (or the entire) tablespaces and databases to different storage units 310 in order to prevent the tablespaces and databases from running out of storage. (See, e.g., Abstract; paragraphs 30-31, 36-41 and 43-45; and Figures 1-4). However, unlike the present invention, Goyal et al. do not disclose a step of obtaining, calculating, or assuring a performance margin, or determining a candidate of an allocable volume in accordance with the operation history of the volume. More particularly, Goyal et al. do not teach obtaining information on

operation history of a volume and information on specification values including the performance value of a storage device, and assuring a performance margin and determining a candidate of an allocable volume in accordance with a received condition for allocating the volume based on the information on the operation history of the volume and the information on the storage device, as set forth in claim 1. Similarly, Goyal et al. do not teach calculating a forecasted performance value from information on a performance value of a disk group stored in a database for the operation history, obtaining a performance margin based on a theoretical performance value of the volume and the forecasted performance value, and determining a candidate for allocating the volume in accordance with a calculation result, as recited in claims 4, 9 and 11. Additionally, Goyal et al. do not teach referring to history information obtained from a result of actually operating disk groups, calculating a performance margin of a disk group based on the history information, and obtaining a volume candidate in accordance with a calculation result, as set forth in claim 19.

The published patent application to Blumenau et al., US 20040221049 discloses a GUI that provides a management window 1400 to enable a user to view, configure, or modify the manner in which devices are connected to one another, and to view, configure, or modify the allocation and access to storage volumes on a storage system. As a new host device enters the network, the system administrator allocates storage system volumes to the host. The number of volumes allocated to

the host may be based on a requested number of volumes, or alternatively may be based on historical data requirements of the host. The system administrator may be implemented in software, executing on one of the devices or storage systems in the network, and may include the GUI to enable users to monitor the availability and assignment of volumes to different hosts in the network. (See, e.g., Abstract and paragraphs 54 and 124-137.) However, Blumenau et al. do not disclose any particular allocation formula, and do not disclose obtaining, calculating, or assuring a performance margin, or allocating a volume based on operation history. More particularly, Blumenau et al. do not teach obtaining information on operation history of a volume and information on specification values including the performance value of a storage device, and assuring a performance margin and determining a candidate of an allocable volume in accordance with a received condition for allocating the volume based on the information on the operation history of the volume and the information on the storage device, as set forth in claim 1. Similarly, Blumenau et al. do not teach calculating a forecasted performance value from information on a performance value of a disk group stored in a database for the operation history, obtaining a performance margin based on a theoretical performance value of the volume and the forecasted performance value, and determining a candidate for allocating the volume in accordance with a calculation result, as recited in claims 4, 9 and 11. Additionally, Blumenau et al. do not teach referring to history information obtained from a result of actually operating disk groups, calculating a performance margin of a disk group based on the history

information, and obtaining a volume candidate in accordance with a calculation result, as set forth in claim 19.

The published patent application to Soejima et al., US 20030074528, shows a volume management method that takes requested performance of other volumes into consideration when specifying a requested storage capacity and requested average performance in response to a received request. The method includes forming a judgment based upon whether each volume will be able to satisfy a requested access time after creation of the new volume. The requested access time and the average I/O count of each volume are obtained. Subsequently, a post-requested-volume-creation access time to be assigned to each volume is determined. Then, the list of volumes is examined to form a judgment as to whether or not there is a volume with unverified preservation of the post-requested-volume-creation access time thereof on the list. If such a volume no longer exists on the list, the flow of the procedure goes on to make a decision that all volumes on the list satisfy their requested access times before ending the procedure. Whereas if the outcome of the judgment indicates that there is one or more volumes with unverified preservation of the requested access times thereof on the list, the flow of the procedure goes on to a step at which a next volume with unverified preservation of the requested access time thereof is selected from the list. Then, the flow of the procedure goes on to a step to form a judgment as to whether or not the selected volume's post-requested-volume-creation access time satisfies the requested access

time. Requested access times are acquired from a requested-access-time storage 3006. (See, e.g., Abstract and paragraphs 12-15 and 44-48.) Accordingly, Soejima et al. teaches that allocation is based on stored requested access times, rather than an operation history, or an obtained, calculated, or assured performance margin. More particularly, Soejima et al. do not teach obtaining information on operation history of a volume and information on specification values including the performance value of a storage device, and assuring a performance margin and determining a candidate of an allocable volume in accordance with a received condition for allocating the volume based on the information on the operation history of the volume and the information on the storage device, as set forth in claim 1. Similarly, Soejima et al. do not teach calculating a forecasted performance value from information on a performance value of a disk group stored in a database for the operation history, obtaining a performance margin based on a theoretical performance value of the volume and the forecasted performance value, and determining a candidate for allocating the volume in accordance with a calculation result, as recited in claims 4, 9 and 11. Additionally, Soejima et al. do not teach referring to history information obtained from a result of actually operating disk groups, calculating a performance margin of a disk group based on the history information, and obtaining a volume candidate in accordance with a calculation result, as set forth in claim 19.

The Japanese publication to Otake, JP 2001-184175, shows a technology for storing the history of access information to the storage device and for forming a candidate of new logical-disk-structure based on the analysis result of the history information so as to restructure the logical disk structure so that access performance is improved and the efficiency of the used disk area is increased. The construction of logical disks to be formed anew is determined by considering the situation of past access to the physical disks. A disk-formation efficiency evaluating means is included for evaluating the efficiencies of prospective logical disks. (See, e.g., Abstract and paragraphs 14-19 of the English-language translation.) However, the prospective logical-disk structure is not determined based upon an obtained, calculated, or assured performance margin. More particularly, Otake does not teach obtaining information on operation history of a volume and information on specification values including the performance value of a storage device, and assuring a performance margin and determining a candidate of an allocable volume in accordance with a received condition for allocating the volume based on the information on the operation history of the volume and the information on the storage device, as set forth in claim 1. Similarly, Otake does not teach calculating a forecasted performance value from information on a performance value of a disk group stored in a database for the operation history, obtaining a performance margin based on a theoretical performance value of the volume and the forecasted performance value, and determining a candidate for allocating the volume in accordance with a calculation result, as recited in claims 4, 9 and 11. Additionally,

Otake does not teach referring to history information obtained from a result of actually operating disk groups, calculating a performance margin of a disk group based on the history information, and obtaining a volume candidate in accordance with a calculation result, as set forth in claim 19.

The Japanese publication to Kaneko et al., JP 10-320126, shows a volume allocation system wherein large capacity disks are divided into a plurality of logical volumes. An I/O constitution managing portion generates logical volume constitution information indicating how a plurality of logical volume groups are constituted with respect to each logical volume. A volume selecting portion acquires average I/O response value for a certain time period from gathered performance information. Then, the volume selecting portion selects a logical volume having the lowest I/O load from allocation candidate groups, and excludes the other logical volumes in the same volume groups from allocation. (See, e.g., Abstract and paragraphs 28-34 of the English-language translation.) Thus, unlike the present invention, Kaneko et al. do not obtain, calculate, or assure a performance margin. More particularly, Kaneko et al. do not teach obtaining information on operation history of a volume and information on specification values including the performance value of a storage device, and assuring a performance margin and determining a candidate of an allocable volume in accordance with a received condition for allocating the volume based on the information on the operation history of the volume and the information on the storage device, as set forth in claim 1. Similarly, Kaneko et al. do not teach

calculating a forecasted performance value from information on a performance value of a disk group stored in a database for the operation history, obtaining a performance margin based on a theoretical performance value of the volume and the forecasted performance value, and determining a candidate for allocating the volume in accordance with a calculation result, as recited in claims 4, 9 and 11. Additionally, Kaneko et al. do not teach referring to history information obtained from a result of actually operating disk groups, calculating a performance margin of a disk group based on the history information, and obtaining a volume candidate in accordance with a calculation result, as set forth in claim 19.

(F) CONCLUSION

As demonstrated by the above discussion, the references fail to teach or suggest obtaining information on operation history of a volume and information on specification values including the performance value of a storage device, and assuring a performance margin and determining a candidate of an allocable volume in accordance with a received condition for allocating the volume based on the information on the operation history of the volume and the information on the storage device, as set forth in claim 1.

Similarly, the references fail to teach or suggest calculating a forecasted performance value from information on a performance value of a disk group stored in

a database for the operation history, obtaining a performance margin based on a theoretical performance value of the volume and the forecasted performance value, and determining a candidate for allocating the volume in accordance with a calculation result, as recited in claims 4, 9 and 11.

Furthermore, the references fail to teach or suggest referring to history information obtained from a result of actually operating disk groups, calculating a performance margin of a disk group based on the history information, and obtaining a volume candidate in accordance with a calculation result, as set forth in claim 19.

Thus, it is submitted that all of these claims are patentable over the cited references taken individually, or in combination with each other. The remaining claims are dependent claims, claim additional features of the invention, and are patentable at least because they depend from allowable base claims. Accordingly, the requirements of 37 CFR §1.102(d) having been satisfied, the Applicants request that this Petition to Make Special be granted and that the application be examined according to prescribed procedures set forth in MPEP §708.02 (VIII).

The Applicants prepared this Petition in order to satisfy the requirements of 37 C.F.R. §1.102(d) and MPEP §708.02 (VIII). The pre-examination search required by these sections was "directed to the invention as claimed in the application for which special status is requested." MPEP §708.02 (VIII). The search performed in support of this Petition is believed to be in full compliance with the requirements of MPEP §708.02 (VIII); however, Applicants make no representation that the search covered every conceivable search area containing relevant prior art. It is always possible that

prior art of greater relevance to the claims may exist. The Applicants urge the Examiner to conduct his or her own complete search of the prior art, and to thoroughly examine this application in view of the prior art cited above and any other prior art that may be located by the Examiner's independent search.

Further, while the Applicants have identified and discussed certain portions of each cited reference in order to satisfy the requirement for a "detailed discussion of the references, which discussion points out, with the particularly required by 37 C.F.R. §1.111(b) and (c), how the claimed subject matter is patentable over the references" (MPEP §708.02(VIII)), the Examiner should not limit review of these documents to the identified portions, but rather is urged to review and consider the entirety of each reference.

(G) FEE PAYMENT (37 C.F.R. 1.17(i))

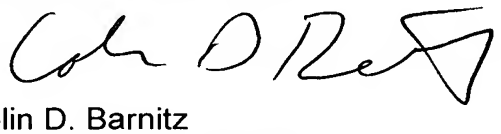
The fee required by 37 C.F.R. § 1.17(i) is to be paid by:

[X] the Credit Card Payment Form (attached) for $130.00.

[ ] charging Account 50-1417 the sum of $130.00.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417. A duplicate of this petition is attached.

Respectfully submitted,



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PTO/SB/30 (11-04)
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PETITION FEE
Under 37 CFR 1.17(f), (g) & (h)
TRANSMITTAL
(Fees are subject to annual revision)

Send completed form to: Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450

Application Number	**10/649,636**
Filing Date	**August 28, 2003**
First Named Inventor	**S. FUKUDA et al**
Art Unit	**2171**
Examiner Name	**TBD**
Attorney Docket Number	**520.43064X00**

Enclosed is a petition filed under 37 CFR §1.102(d) that requires a processing fee (37 CFR 1.17(f), (g), or (h)). Payment of $ 130.00 is enclosed.

This form should be included with the above-mentioned petition and faxed or mailed to the Office using the appropriate Mail Stop (e.g., Mail Stop Petition), if applicable. For transmittal of processing fees under 37 CFR 1.17(i), see form PTO/SB/17i.

Payment of Fees (small entity amounts are NOT available for the petition (fees)

☒ The Commissioner is hereby authorized to charge the following fees to Deposit Account No. 50-1417:
☐ petition fee under 37 CFR 1.17(f), (g) or (h) ☒ any deficiency of fees and credit of any overpayments
Enclose a duplicative copy of this form for fee processing.

☐ Check in the amount of $ _____ is enclosed.

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Petition Fees under 37 CFR 1.17(f): **Fee $400** **Fee Code 1462**
For petitions filed under:
§ 1.53(e) - to accord a filing date.
§ 1.57(a) - to according a filing date.
§ 1.182 – for decision on a question not specifically provided for.
§ 1.183 – to suspend the rules.
§ 1.378(e) for reconsideration of decision on petition refusing to accept delayed payment of maintenance fee in an expired patent.
§ 1.741(b) – to accord a filing date to an application under §1.740 for extension of a patent term.

Petition Fees under 37 CFR 1.17(g): **Fee $200** **Fee code 1463**
For petitions filed under:
§1.12 - for access to an assignment record.
§1.14 - for access to an application.
§1.47 - for filing by other than all the inventors or a person not the inventor.
§1.59 - for expungement of information.
§1.103(a) - to suspend action in an application.
§1.136(b) - for review of a request for extension of time when the provisions of section 1.136(a) are not available.
§1.295 - for review of refusal to publish a statutory invention registration.
§1.296 - to withdraw a request for publication of a statutory invention registration filed on or after the date the notice of intent to publish issued.
§1.377 – for review of decision refusing to accept and record payment of a maintenance fee filed prior to expiration of a patent.
§1.550(c) – for patent owner requests for extension of time in ex parte reexamination proceedings.
§1.956 – for patent owner requests for extension of time in inter partes reexamination proceedings.
§ 5.12 – for expedited handling of a foreign filing license.
§ 5.15 – for changing the scope of a license.
§ 5.25 – for retroactive license.

Petition Fees under 37 CFR 1.17(h): **Fee $130** **Fee Code 1464**
For petitions filed under:
§1.19(g) – to request documents in a form other than that provided in this part.
§1.84 – for accepting color drawings or photographs.
§1.91 – for entry of a model or exhibit.
§1.102(d) – to make an application special.
§1.138(c) – to expressly abandon an application to avoid publication.
§1.313 – to withdraw an application from issue.
§1.314 – to defer issuance of a patent.

07/18/2005 JADD01 00000067 10649636
01 FC:1464 130.00 OP

Name (Print/Type)	**Colin D. Barnitz**	*Registration No. (Attorney/Agent)*	**35,061**
Signature	Colin D Barnitz	*Date*	July 15, 2005

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**